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USATECOM Project No. 8-3-0030-09 F Product Improvement Test of XM16 Rifles

Army Infantry Board Fort Benning Ga

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UNITED STATES ARMY INFANTRY BOARD
Fort Benning, Georgia 31905 Capt Ball/mae/545-1092

STEBC-SA (P-3008C) 2 DEC 1963

SUBJECT: USATECOM Project No 8-3-0030-09 F, Product Improvement Test of XM16 Rifles

TO: Commanding General
United States Army Test and Evaluation Command
ATTN: AMSTE-BC
Aberdeen Proving Ground, Maryland 21005

1. References.

a. Letter, STEBC-SA, USAIB, 30 August 1963, subject: "Test Results of USATECOM Project No 8-3-0030-07 F, Product Improvement Test of Armalite AR-15 Rifle."

b. Letter, STEBC-SA, USAIB, 14 October 1963, subject: "Second Letter Report of Test Results of USATECOM Project No 8-3-0030-07 F, Product Improvement Test of Armalite AR-15 Rifle."

2. Authority.

a. Directive. Letter, AMSTE-BC, USATECOM, 29 October 1963, subject: "Product Improvement Test of Modified AR-15 Rifles."

b. Purpose. To determine the adequacy of the modifications in the product improvement of the XM16 (formerly AR-15) rifles to perform their intended task.

3. Description of Materiel. The XM16 rifles received for this test contain the following modifications:

a. A side-mounted bolt assist device which is similar to the one tested in October 1963 (ref 1b), except that it has an enlarged striking surface on the plunger cap (incl 1).

b. A larger charging handle, expanded at the rear in width and thickness, has been provided, presumably to increase leverage for the opening of the bolt in the event of certain stoppages (incl 1).

c. A modified firing pin is designed to prevent inadvertent firing. The shoulder of this pin is reduced in size and it operates against a coil spring which would appear to prevent forward movement of the firing pin until it is struck by the hammer when the trigger is pulled (incl 2).

4. Background.

a. In August 1963, the US Army Infantry Board tested XM16 rifles, each containing a bolt assist device which featured a modified charging handle and bolt carrier. Such a device was found unsuitable for US Army use (ref 1a).

b. On 2 October 1963, rifles containing a side-mounted, ratcheting bolt assist device were tested. This Board concluded that this device provided an adequate but not an optimum means of closing the bolt in the event the bolt failed to close. It was recommended that the striking surface on the plunge cap be enlarged (ref 1b).

c. The directive for this test was received on 5 November 1963. The XM16 rifles were received on 11 November 1963. The firing pins were received on 14 November 1963.

5. Test Data.

a. Method. Nine modified XM16 rifles were received for test. The plan of test prepared at Headquarters, US Army Test and Evaluation Command (incl 3 to directive), was followed. Testing was begun on 14 November and concluded on 18 November 1963. The following tests were conducted:

(1) Test I - The nine XM16 rifles were fired at the rate of 40 rounds per minute for 5 minutes, allowed to cool, then fired at the rate of 15 rounds per minute for 200 rounds and allowed to cool. The rifles were then cleaned and oiled.

(2) Test II - The XM16 rifles were exposed to settling dust as might be encountered in a convoy, wiped off under hurried field conditions, fired 40 rounds per minute for 5 minutes, allowed to cool, then were cleaned and oiled.

(3) Test III - A liberal coat of oil was applied to the firing mechanisms of the rifles, after which they were submerged in water, wiped off under hurried field conditions, fired 40 rounds per minute for 5 minutes, and allowed to cool. They were then cleaned and oiled.

b. Findings.

(1) The following malfunctions occurred during the test described in paragraph 5a above, during which a total of 7,200 rounds was fired.

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	Test I	Test II	Test III	TOTAL
Failure to feed	-	10	5	15
Failure to chamber	2	2	2	6
Failure of the bolt to close	-	1	2	3
Double feed	-	2	1	3
Failure to fire	-	-	1	1
Failure of bolt to remain open after the last round from the magazine was fired	-	1	-	1
Failure to strip first round from the magazine	-	1	-	1
TOTAL				30

(2) All of the stoppages listed above were cleared by the application of immediate action, either by use of the bolt closure device (the side-mounted bolt assist device) or by pulling the bolt opening device (the enlarged charging handle) to the rear and releasing the bolt.

(3) The increased striking surface of the plunger cap on the side-mounted bolt assist device provided adequate striking surface.

(4) There were no occurrences of aggravated stoppages requiring more than average force to be applied to the charging handle for bolt opening.

(5) There were no inadvertent firings. Ammunition lot number RA5024 was used which did not contain known sensitive primers as would be necessary to determine inadvertent firing.

(6) No abnormal occurrences were recorded.

6. Conclusions. The United States Army Infantry Board concludes that:

a. The striking surface on the plunger cap of the side-mounted bolt assist device is now adequate for closing the bolt in the event of a stoppage.

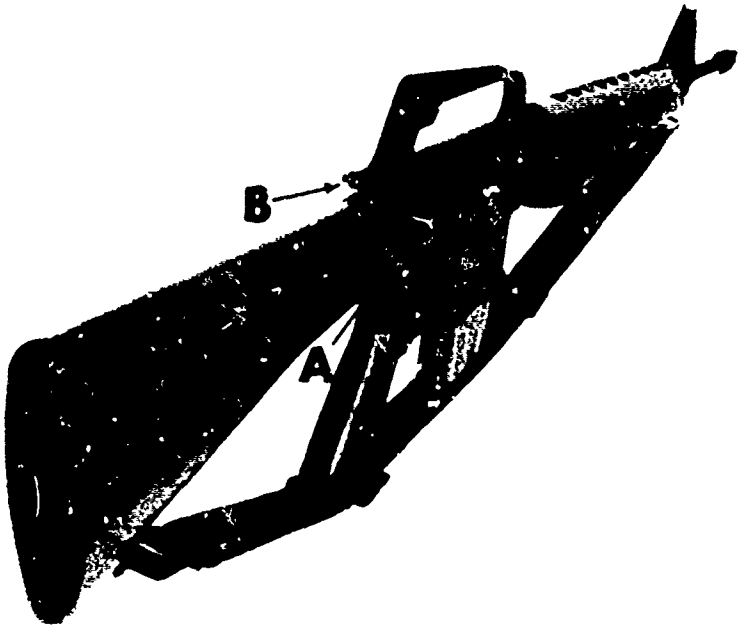
b. The modified charging handle increases the capability to apply leverage for opening the bolt and is now adequate.

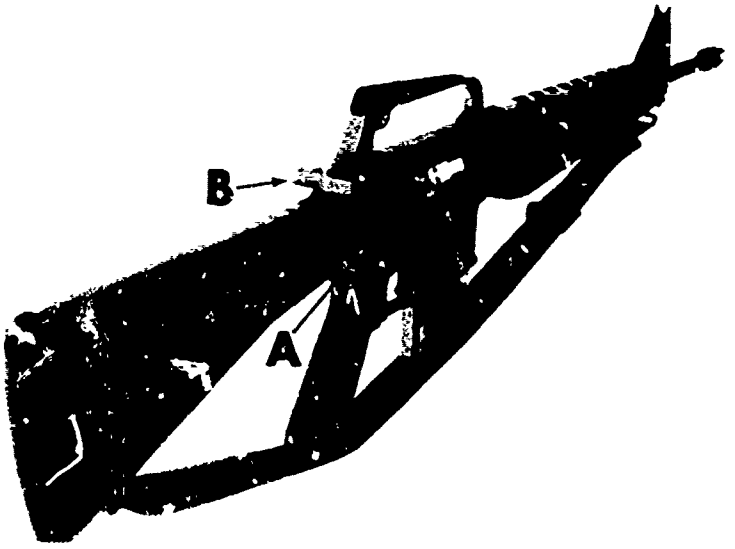
c. The spring-cushioned firing pin is adequate to perform its intended task.

7. Recommendation. It is recommended that the modifications for bolt opening and closing and the spring-cushioned firing pin be adopted as adequate to perform their intended tasks.

H. C. WILLIAMS
Colonel, Infantry
President

2 Incl
Photos





UNITED STATES ARMY INFANTRY BOARD

FORT BENNING, GEORGIA

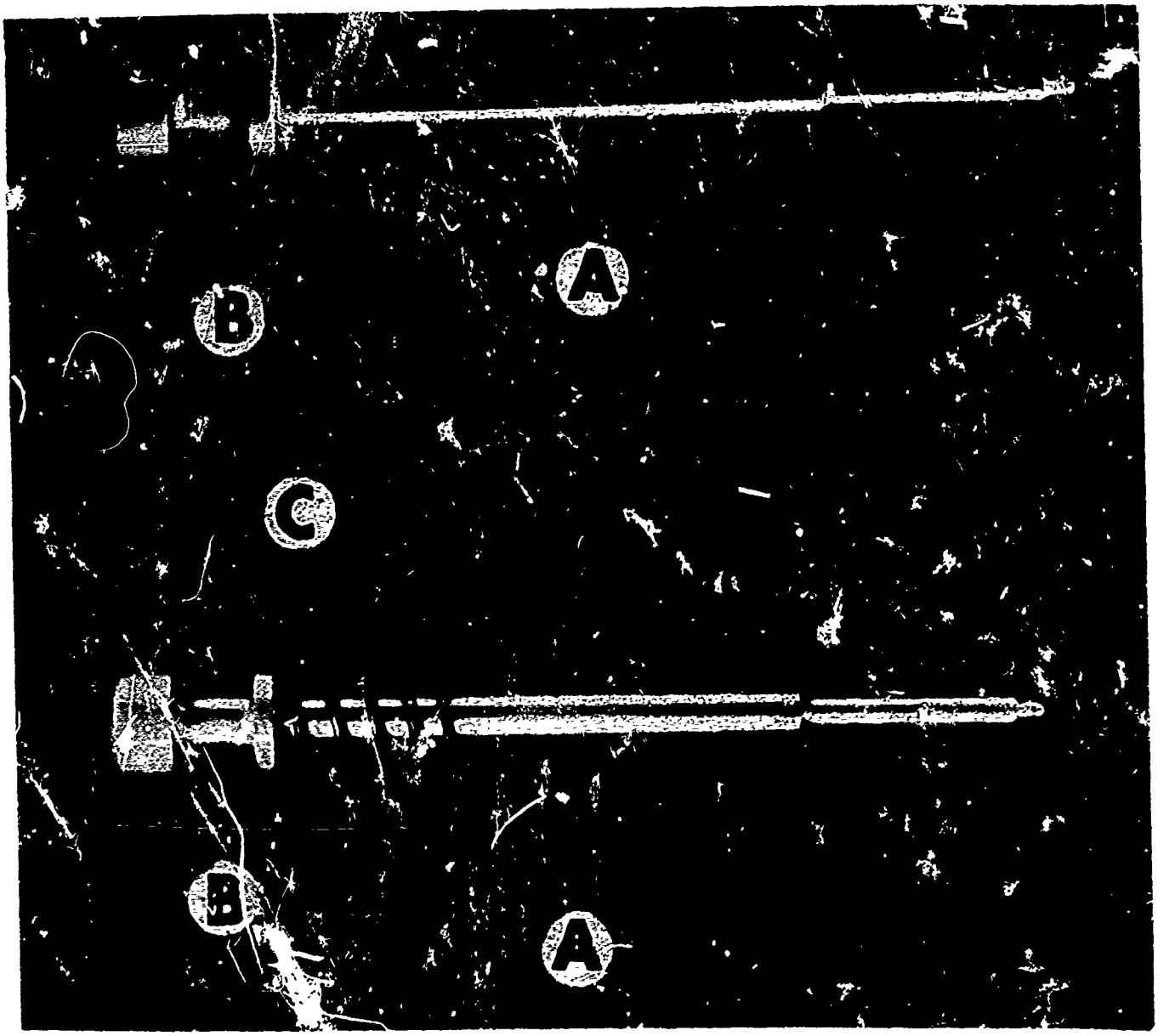
USATECOM PROJECT NO 8-3-0030-09 F
PRODUCT IMPROVEMENT TEST OF XM16 RIFLES

TOP: First side-mounted bolt assist device:
A. Plunger cap.
B. Charging handle.

BOTTOM: Modified side-mounted bolt assist device:
A. Modified plunger cap striking surface.
B. Modified charging handle.

5

Incl 1



UNITED STATES ARMY INFANTRY BOARD

FORT BENNING, GEORGIA

USA.ECOM PROJECT NO 8-3-0030-09 F
PRODUCT IMPROVEMENT TEST OF M16 RIFLES

TOP: Standard firing pin for XM16 rifle:
- A. Standard firing pin.
- B. Larger shoulder.

BOTTOM: Modified firing pin for XM16 rifle:
- A. Spring-cushioned firing pin.
- B. Reduced shoulder.
- C. Coil spring.

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Incl 2